

# THE SCOPE

FEBRUARY


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# THE SCOPE



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# T H E S C O P E

VOL. IX

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No. 6

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## Editorial

Suspicion defined: Act of suspecting; imagination of the existence of something without proof; mistrust.

Pope wrote of suspicion: "All seems infected but the infected spy . . . as all looks yellow to the jaundiced eye."

Usually suspicion is born of a guilty conscience—one has done something that one wants to conceal from others.

As *suspicion* is born of guilt, so *fear* is born of suspicion.

A suspicious man is his own worst enemy; because in his own doubt-infected mind, the suspicious man creates myriads of mythical foes, which in the end become real obstacles.

It shouldn't be entirely rational to go through life allowing one's self to wholly rely on the half-truths and vagaries of sophists no matter how well meaning they may be either individually or as a group; or how profound, even, their philosophies

or sophistries if you like.

But, ask the question; discover the truth from the individual; do not permit *doubt* to fasten its tenacles into your imagination until finally you are beset by an unfounded and wholly unwarranted suspicion. If one suspects an individual, or group, guilty of misdemeanor it would seem that the only decent procedure for rectification of the matter would be to consult with the individual or with the group. After all, isn't it a bit thick to make an issue of a minor difficulty that should take but a few moments to iron out?

Who uttered the platitude: "No one is so *wrong* as the person who is always *right*."? But, right or wrong a gentleman knows his place, and despite Mr. Oswald Spengler's prophesy of the decline of the western civilization, this writer hazards the guess that a gentleman will always know his place—and keep it!

## M. S. O. Acquires New Instruments

There is something inspiring about new things whether they be people, cities or buildings and this holds for scientific instruments and apparatus as well. In the past half year there has been made many additions of equipment for the clinic, laboratory, and shop. This new material is not only a source of great potentiality as far as work is concerned but it signifies that these new additions are a consummation of effort and progress in the profession. To go into detail in introducing these new features would dull their combined presentation so that a few words in connection with each will suffice.

Foremost of the later acquisitions is the Ophthalmograph, a mechanism for recording the speed of eye movements by utilizing means for actually filming the eyes during reading. In this manner the efficiency of our visual apparatus in fixing and chanc-fixation is determined. Of equal value is the Metronoscope, an instrument of real value in the development of proper binocular visual functioning. It consists of a presentation of stories in periodic sequences by means of three alternately sliding shutters with the patient always reading from left to right. Another asset to the Orthoptic division is the new De Luxe Wottring Rotoscope featuring the light flashing control with variable time intervals. Prominent is the Shuron Visual Acuity Meter with a mechanism for measuring visual acuity under various intensities and various atmospheric conditions. Less prominent additions are a new perimeter, photoscope, projectoscope, C-I keratometer, and B & L keratometer.

The shop has a multitude of apparatus recently acquired dominant of which are the four hand grind stones with their accompanying motors. Then there are two auto-

matic stones also recently acquired, making for more skill, greater speed, and efficiency. Here and there about the shop are to be found four new centering devices, two Lloyd axometers, and a new lensometer. They present the finest methods of locating centers, axes, and powers of lenses and along with other instruments, they are instrumental in making possible shop work and practical instruction on proportions of greater scope. Leading the field of recent scientific research is the Colmoscope, an instrument used to detect stress and strain in ophthalmic lenses by means of polarization. These features have led many visitors to the shop to favorably comment on its appearance and efficiency.

In the laboratory the instrument room is literally teeming with devices and gadgets that stimulate more than casual interest as to their application. There is the Carbon Disulphide direct vision prism which provides a spectrum that can be used in many ways and is practically important in determining the absorbtal qualities of diffraction gratings which enable examination of the spectrum by diffraction, and a study of diffraction patterns. Very interesting is the electric top with its maze of vari-colored disc used in establishing critical frequencies, and a method of color mixing. Among the other attractions are an Arc lamp to be used for demonstrative purposes, an illuminated object, many slides with illustrations, and an after image apparatus.

Outlining these new acquisitions is not with the purpose of familiarizing you with them, but rather to point out the facilities available for modern and up-to-the-minute Optometric investigation and its basic sciences.

J. A. G.





## Senior News

Doc Graham is most heartily congratulated by all those present at the Fraternity Smoker on his eloquent, flowery, magnificent vociferation!! (He seemed more interested in "round bottom" lenses??)

Doc Green is also up for a round of applause and, although literally not as oratorical as Doc Graham, he practically singed all those unsuspecting Frosh with his fiery vehemance!!

The nightly (Frat Affair) Rialto Club has been reenforced by two New Jersey men and as a result; a good time was had by all!! (Hey, you, have a green-leaf!!)

Levin is in his g(l)ory now romping and cavorting with a group of pledgees!! (Swartz and Shepard can take it easy and rest on their laurels, now!!!)

There's something in the air between two members of the opposite sex in our class — his chair is 3.414 m/ms. nearer hers?? (P. S. I measured it myself??)

Huddy has revised Dr. Green's technique in orthoptics in Latent Hyperopia: Have patient light candle with match, count one, blow out, count two, and we therefore have negative accommodation exercises combined with arm movements, ability of patient to light match, ability of patient, and patient all tired out at one sitting!! (We therefore experience no difficulty with patient because he is too exhausted and is thus permitted to "dangle"!!)

The basketball team has been aided and abetted by Carvin who takes pride in his ability to be a professional in both senses of the word!! (He is attempting to emulate Nechtem's prowess but sad to say a suitable comparison would be a —.12 cylinder to an 8.00 D. astigmat!!!)

Smith and Goldberg have taken up a course in Art and can be seen "taking down" and drawing pictures, in any Theoretic Optometry class, with great gusto and zeal!!

Malamut had an awful scare one Monday morning. He awoke to find a stranger in his room, i. e., a stranger on Mondays as he (Lokitz) usually doesn't return until Tuesday!! (Possibly a *Virginia Visitor*, no doubt???)

Pinckert and Shack are all set now after a most delightful experience!! (For all particulars, details, and whereabouts — get in touch with F. P.!!)

Tuells is paying Joe's fares now, or is it vice versa this week?? (Bowling sure will have its fling at M. S. O.!!)

M. S. O. Basketball team actually won a game and although the contest itself was not too exciting, Mass. Art sent up a worthy representation which caused M. S. O. to do likewise!! (Halperen increased effectivity by removing his upper and lower lids and placing his lenses in contact with the cornea!!!)

## Is It True?

Is it true that a certain Junior can't break the news to dad?....Is it true that a certain Senior paints the town red with a certain Freshman?....Is it true that bowling isn't confined to the student body?....Is it true that a certain Freshman has nightmares?....Is it true that a certain Senior would like to play house in Maine?....Is it true that a certain Junior likes canned fish?....Is it true that a certain Freshman keeps house on borrowed vegetables?....Is it true that a certain Senior would try cutting the

price on his own funeral?....Is it true that a certain Freshman caters to girls who need haircuts?....Is it true that a certain Junior enjoys dancing, even on the sidewalk?....Is it true that a certain Junior can't make up his mind about the girl friend?....Is it true that certain Senior is getting cold feet?....Is it true that a certain Freshman is saving his dimes for the license?....What did S. L. admit before witnesses on the night of the 16th? Does he still consider it a secret? If true?

# Eye Eye, Suh!

M. OSSEN

Eye-O again —

We borrowed this from Walter Winchell's "Little Things About Big People": Rex Beach is color-blind and does all his writing on green paper—which appears white to him.... Sylvia Sydney has a little brown spot near the iris of her right eye, *but it doesn't photograph* (?) (Walter evidently has been looking through ophthalmoscopes lately — instead of keyholes.)

A spy during the world war evaded detection by placing reports in his glass eye (U equals 4/3).

Butterflies have or are supposed to have a keener sense of vision than smell as they are attracted to beautifully colored flowers rather than fragrant ones.

According to Chinese medical science eye troubles are caused by "fire burning in the heart". (James the *Bicarb* please — myopia has got me again).

You might have bet on 'em but we'll bet you didn't notice this: When leaning on a curve a horse keeps his eyes parallel to the ground. (Thanks again Pres. Gibbons).

Termites are divided into workers, soldiers, police, winged termites, and king and queen; but only the winged variety are blessed with sight.

This month's wisdomism: When a girl has tears in her eyes these days its either love, hate, or mascara.

John Lippershey (Hans Lippersheim) was the first to discover the principal of the telescope at about 1600 A. D.

There is said to be more than \$250,000 worth of optical instruments on every battleship.

Most species of spiders have eight eyes.

According to legends eye-color is a definite index of character—we shall present a few of these each month:

Green eyes—jealousy.

Greyish blue eyes—steadfastness.

Nut brown eyes—a merry mind.

Soft blue eyes—mildness.

The advertisement of the future: Ladies have your new spring dresses built on a base 36 and retain that tornic shape. For they expect to make all sorts of garments out of glass in the very near future. In fact they are able to take one pound of molten glass and spin it into a thread, 1/20th as thick as human hair, that will stretch around the earth. Though the fiber is finer and smaller than silk it is actually stronger.

Geronimo, an Indian Chief of the middle 1800's, derived great delight in cutting off his prisoners eyelids and then exposing them to the sun.

Robert Hooke was the first to measure the minimum visual angle (1 minute) although Euclid, hundreds of years earlier, had discovered that there was a limiting visual angle.

People blind from birth lack sense of space. They realize that the room they are in is part of a house; but they can not form an opinion of the size of the house.

Of the 120,000 blind in this country only 30,000 are able to read Braille.

Goethe was extremely myopic but would seldom wear his Rx, particularly in public. He wrote, "no one would come bespectacled into a room full of intimates if he knew that women lose all pleasure at the sight, or in entertaining him."



An electric spark flashed off and on in 1/200th of a second remains on the retina 40,000 times longer than the actual duration of the spark. (Just imagine the time when Miss Harlow is flashed off and on the screen).

If we had to pay for all the material we go through to obtain these facts, each one

would average around 35 cents. (But we don't).

After giving the above due thought we've decided that \$6.65 is just about enough to spend on one column.

So until next month — Eye'll be seeing you.

## Junior News, Inc.

B. and G.

Little "Alfie" just laughed and laughed, because he knew that those two cylinders really made a sphere.

The rivalry between C. Donahue and F. Fortin seems to be on a tie basis.

That wasn't anger among a few members of the class one day a short time ago. It was just a little "are-up" that was quickly smothered.

"Willie" with a walk was flirting  
Heedlessly, danger he was courting.  
But he took the walk one day;  
Now he's up in front to stay.

Bowling seems to be the chief means of recreation for a large part of the class. It might be a good idea to assemble a few teams and promote some inter-class competition.

The class sage says that most self-made men deserve a lot of credit for having picked the right wife in the first place.

Mal Harris has stopped drinking coffee for breakfast. He says that it keeps him awake all day.

Dr. Green to the Junior B's: "I cannot understand why this section is always behind Section A. You both have the same instructors, the same material, the same facilities, the same building, etc."

Rosen: "Yes Doctor, but we were at a disadvantage last semester. We had to sit on steel chairs."

Dr. Green: "Does that mean that you think with what you sit on?"

Pyne: "Fix the E, Paul."

Burns: "What's the matter with it?"

Foley: "What if the lens were placed 50 millimeters from the cornea?"

Dr. Cline: "That makes no difference except that someone might accidentally walk between the patient and Rx."

The members of Maintenance Department convened one afternoon to discuss various matters of importance. A unanimous vote of thanks was given Levandoski for his invaluable aid to the department. It was suggested that if he brought sardines for lunch just a few more times, they could postpone oiling the floor until spring.

Honor was also paid to those erstwhile fire-fighters of Section A for their courageous efforts during the recent conflagration in their class-room. The question of who was going to refill the fire-extinguisher was tabled for further investigation.

Problem: Determine the carnival points of an electric fan. (Hint: Number each propellor and bring your lunch).

We've heard of art collectors, stamp-collectors, autograph collectors, and countless others, but *never* of trial-case collectors. They must be a rare species of rodent. How fortunate it is that ophthalmometers don't fit into vest-pockets.

# Fraternity News

HAROLD SHEPARD

*Scribe*

JOHN A. DI NAPOLI

*Guardian of Treasury*

JOHN C. RUSSEL

*Executive Committee*



Π Ο Σ

ALFRED J. ROY

*Chancellor*

BERNARD LEVIN

*Vice Chancellor*

ALDEN TUELLS

*Sergeant-at-Arms*

DR. RALPH GREEN

*Grand Chancellor  
Faculty Advisor*

## Fraternity Announcement

All graduates that were members of the Fraternity when in school are requested to send in their names, addresses, and year of graduation for the compilation of the Fraternity Roster.

The Fraternity Registration cards for personal identification will be mailed with a subscription to the mailing list upon receipt of one dollar. These cards and subscription are good for one year.

### FRATERNITY SPONSORS LECTURE

On the evening of Wednesday the 10th of February, 1937 the Pi Omicron Sigma Fraternity presented a lecturer, Dr. Philip Quinn of New Bedford who delivered a complete and comprehensive treatise on the various X cylinder techniques pertinent to modern refraction. The discussion was brought forth before a capacity gathering and lasted the full two hours during which time Dr. Quinn completely captivated and maintained the attention of the entire audience with verbal fluency and an amiable personality. The speaker attacked the

voluminous subject in a commendable and conscientious manner presenting those points most essential in modern diagnosis.

In commencing his talk the lecturer stressed the importance of a precise cylindrical correction in the refractive work. He explained how the X cylinder could be used to supplement the procedure in obtaining both the correct axis and power of an astigmatic system. Both, the theoretical principles and practical application were reviewed. The gentleman then proceeded to link up the use of the X cylinder and how it indicated at distance the tonicity, both, by the V grid and the duo-chrome methods.

An interesting and recent method of using the X cylinder in conjunction with the Robinson-Cohen test for the determination of the astigmatic correction was discussed. In this phase it is used to check the best astigmatic correction that can be obtained. It alternately emphasizes first one line and then the other, as the X cylinder is flipped from one principle meridian to the other.

Having outlined the several check tests, Dr. Quinn reached the crux of his talk in his presentation of the fused and unfused X cylinder tests as used in everyday practice. He linked the fused X cylinder with the Near Tonicity test as to their diagnostic values and explained typical sets of findings in both normal and abnormal cases.

The final topic spoken of was the unfused X cylinder test and its associated phoria. The lecturer waived the discussion of procedure in the case, to stress the importance

of co-ordinating the results with the rest of the examination. He unfurled a new angle on determining the normal proportion between the prism and dioptral power.

Credit for this method was given to Dr. O'Shea. The method is to multiply the pupillary distance in centimeters by the dioptral amount of the lag. The result of the operation should equal the power of the prism used to measure the lag of the convergence. This is a variation of the present accepted diagnosis of a 6-1 ratio in that it uses the individual P.D. instead of the arbitrary figure.

Dr. Quinn left a favorable impression on the gathering both, as to his expertness and grasp of the subject. The evening was considerably enlivened by his salty remarks at various points in the lecture.

J. A. G. '37

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# Massachusetts School of Optometry

## DANCE

under the auspices of

DR. THEODORE F. KLEIN, Dean

and the Faculty

FRIDAY EVENING, FEBRUARY 26, 1937 at 8.15 p. m.

Ritz-Plaza



## Freshman Class News

February — exams passed (?) and gone and the beginning of a new semester with its new subjects, new enthusiasm, and old bills renewed. It's a great life, and except for that C in Math and a slight shortage in the exchequer things are looking pretty rosy. Plans for the coming Freshman dance are tearing along in fine style, and thanks to the exertions of Prexy, Bessin and the rest of the committee, it promises to be a swell (no relation to hypertrophy) affair. Perhaps by the time this issue is in your hands the dance will be just a pleasant memory, as we're not quite sure of the date at the present time. Just in case our prophecy is fulfilled we'll take this opportunity of congratulating the class on the number that showed up. Believe it or not the entire Freshman class was there to a man, with the exception of Fred Hunt, who, we are sorry to report, was critically injured in a battle among the five girls that wanted to take him. (If you want to know the secret, fellows, it's the wavy hair and the diamond encrusted accordion that he plays like a master. You're welcome.)

We have Miss Rodd's personal assurance that she'll be present at the dance, and that in itself is sufficient enticement to hire a tux, borrow Dad's car and be on the way. (We'll take your I. O. U. for that Milly.)

Dr. Brucker introduced the class to the new course in Theoretic Optics by a short dissertation on marbles and mud-pies, but nevertheless it promises to be one of the most interesting studies we've taken up. The boys are lapping it up and so far at least those periods have gone by like wild-fire. We bet it was the marbles that did it.

And speaking of Dr. Brucker, has anybody ever asked that man something he couldn't explain? Even Wilde is slowly being convinced that the "doc" is generally right, and that the only advantage in arguing with him is in picking up particles of his apparently unlimited knowledge. (Guess

that ought to bring up that Math mark of ours.)

Looks like the M. S. O. basketball team is beginning to hit its stride. They took the M. S. A. boys for a ride to the tune of 26 to 14. We didn't see the game, but congratulations to the squad are in order, and more power to them.

Bon mot by Dr. Bencker: A reflex action is one which takes place without the benefit of the brain — like some of your answers. Not bad, eh?

Our nomination for class humorist goes to Leavitt. On being told by Doc Emmons that a gentleman by the name of Mery immersed a cat in water and so observed the fundus, his prompt reply was, "Mery was no gentleman."

And for runner-up we have that shy, retiring Mr. Woolf. Dr. Klein was explaining subjective and objective examinations and asked, "What is one thing that cannot be found objectively," to which Woolf replied, after deep thought, "The patient's name".

Woolf and Wecker seem to be on pretty good terms with a couple of Berkley Prep. students. We hate to see their interest in the science of sight waning just because of a pair of pretty blue eyes.

And to end it all, and leave a nice taste in your mouth — a thumbnail sketch of Utopia: Fred Wagner buried under an avalanche of two (2) dollar bills.

### OPTOMETRY CLUB

The February meeting of the Optometry Club was held Wednesday the 24th. The student body at that time was addressed by Dr. Edmund S. Wilson, President of the Massachusetts State Society. Dr. Wilson spoke on the history of organized optometry, the present organization and the relationship of the student to the state and national societies.

## Sports

### M. S. O. DEFEATS M. S. A.

25 — 14

The M. S. O. quintet gained its initial win of the season by literally mopping the floor with the Mass. Art School squad. The game was rough and tumble from the start, making it difficult for any player to gain five yards off tackle. At one time the referee became so confused that he called a foul on the wall for bumping into a player.

For the Optometry boys Green, Czelusniak, and Wagner played good ball. Ostrand and Glassman were outstanding for the Art boys.

#### M. S. O.

	<i>Fls.</i>	<i>Gls.</i>	<i>Pts.</i>
Braver, r. f.	1	1	3
Green, r. f.	0	5	10
Hodgkins, l. f.	0	0	0
Czelusniak, c.	0	2	4
Wagner, r. g.	0	2	4
Stonehouse, r. g.	0	0	0
Carvin, r. g.	0	0	0
Friedman, l. g.	0	2	4
Rosenthal, l. g.	0	0	0
	1	12	25

#### M. S. A.

	<i>Fls.</i>	<i>Gls.</i>	<i>Pts.</i>
Glassman, r. f.	0	3	6
Matzola, r. f.	0	0	0
Kenny, l. f.	0	0	0
Ostrand, c.	0	2	4
Yavarow, c.	0	0	0
Connelley, r. g.	0	0	0
Spalding, r. g.	0	0	0
Smith, l. g.	0	2	4
Valentis, l. g.	0	0	0
	0	7	14

### FELINE FEATS (Size 8½)

Our female athletes have acquired a pastime other than working. Bowling seems to have taken up their spare moments

(which are many). The other night Miss X bowled the astounding total of 100 (believe it or not) while Miss Y managed to string along with a measely 99. These phenomenal scores were due to the fact that they took their ire, caused by being couped up in a gilded cage, out on the poor pins. Yep, they certainly caused quite a sexation.

### DR. LOUIS ANAPOLLE

#### MASS. OPTOMETRIC CLINIC

Tutoring All Optometric  
Courses

RES. TEL. COL. 8627

### Do You Warn Them?

Worse than any sunburned skin is the glarestrain caused by too much exposure of the eyes, for its effects reach further and often last longer.

Do you give your patients friendly warning about this? Do you warn them, too against the use of cheap, blown colored glasses which introduce new errors in their vision?

For those who want protection that has been proven safe over many years, prescribe SOFTLITE lenses. SOFT-LITES may be made up in your patient's regular prescription, or to get perfectly ground and polished plano lenses, he may purchase a SOFT-LITE Overglas.

### WILSON & HALFORD OPTICAL COMPANY

387 WASHINGTON STREET

BOSTON, MASSACHUSETTS



# Thumbnail Sketches of the Student Body

Louis Plekavich: Dripping Water.  
 Milton Perlow: Ships that pass in the night.  
 James Pickering: Fruits in season.  
 Robert Preston: Male nurse maid.  
 John Russel: Perpetual Motion.  
 Alfred Roy: Viva les femmes!  
 Freeman Rakusin: Small town columnist.  
 Myrton Swartz: Midsummer Night's Dream.  
 John Hall: Am I blushing?  
 Edward Cerruti: Voice of Experience.  
 Robert Alie: Country Cousin Visiting.  
 Bernard Saitz: Typographical Error.  
 Burton Askowith: Kibitzer never idle.  
 Leslie Stuart: Laughing Gas.  
 David Alpert: Delicatessen Salesman.  
 Toivo Tiihonen: Switzerland in the Spring.  
 Thomas Bermingham: Paul Revere minus horse.  
 Charles Weathers: Big Frog in Little Puddle.  
 Benjamin Bregman: C. O. D. in person.  
 Morris Wise: What's to prevent him?  
 Philip Bouvier: French Pastry.  
 Vincent Phelan: Farm for Sale.  
 Donald Bernstein: Wooden Indian with a Hat on.  
 Loan Rabinovitz: Graveyards at night.  
 Vernon Plummer: Pine needles in your hair.  
 Paul Burns: Cornfields & Hallowe'en.  
 Robert Roffman: Any note, except dough.  
 C. Henry Chevalier: Dr. Jekyll and Mr. Hyde.  
 Maynard Rosen: Kindergarten Blues.  
 Richard Dexter: Man on the Flying Trapeze.  
 Robert Shannon: Turmoil.  
 Madelyn Dyer: Mourning Becomes Electric.  
 Samuel Swartz: Borrowing Librarian.  
 Charles Donahue: Humidity.  
 Albert Wentzell: The Eyes Have It.

Fernand Fortin: Campus Cutup.  
 George Wardrope: Closed Blinds.  
 Howard Foley: Lightning asleep.  
 Alfonse Wiskalis: Affair on Amateur Night.  
 Theresa Guarino: Gone with the Wind.  
 Alex Friedman: No limit.  
 Leo Gibbons: Personality in Caps.  
 Marion Donovan: Summer at the seashore.  
 Kenneth Holt: Just another playboy.  
 Edward Massucco: Vermont going places.  
 Donald Horley: Babe in arms with a complex.  
 Louis Mega: Unwritten pages.  
 Malcolm Harris: Rolled Oats rolling.  
 Norman Hughes: Almanac lost.  
 Charles MacNeill: Sealed Orders.  
 Thaddeus Levabdoski: Cream cheese on rye.  
 Samuel Margolis: Science in volumes.  
 Veronica Meagher: Mascot of the campus.  
 Maurice Ossen: Just an old Southern Custom.  
 Pasquale Palomba: Good proposition, even in New York.  
 Franklin Perry: Pony Express.  
 Frank Pierce: Yeah, man.  
 Harry Pyne: Election returns.  
 Gordon Rand: Good Book.  
 Robert Parmett: Boy Scout off Axis.

## AN EDUCATED MAN

Let us consider education in its fullest definition, as the technique of transmitting as completely as possible, to as many as possible, that technological, intellectual, moral, and artistic heritage through which the race forms the growing individual and makes him human.

Education is the reason why we behave like human beings. We are hardly born

human; we are born ridiculous and unworthy animals. We *become* human; we have humanity thrust upon us through the hundreds of channels whereby the past pours down into the present.

More and more completely we pass on to the next generation the gathered experience of the past. We have not excelled the selected geniuses of antiquity, but we have raised the level and average of human knowledge far beyond any age in history.

Education is generally disliked during youth because it is not presented for what it is. Consider it not as the painful accumulation of facts and dates, but as an exalting intimacy with great men. Consider it not as the preparation of the individual to "make a living", but as the development of every potential capacity in him for the comprehension, control, and appreciation of his world.

It is education which gives a man a clearer conscious view of his own opinion

and judgements, a truth in developing them, an eloquence in expressing them, and a force in urging them.

An educated man is more than merely one who has been graduated from a college or university. He is a man who is at home in any society, he has common ground with every class; he knows when to speak and when to be silent; he is able to converse, he is able to listen; he can ask a question pertinently, and gain a lesson seasonably when he has nothing to impart himself; he is ever ready yet never in the way; he is a pleasant companion, and a comrade you can depend upon; he knows when to be serious and when to trifle; and he has a sure tact which enables him to trifle with gracefulness and to be serious with effect. He has a gift which serves him in public and supports him in retirement, without which good fortune is vulgar, and with which failure and disappointment have a charm.

R. R. R.

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## The "Other Hands"

When the first prescription you write passes out of your hands and on to its mechanical production you will want to know that the "other hands" which complete the job will do their work promptly and well.

To accomplish this, those "other hands" must be able to work not only with skill, but also with the advantage of the best equipment with which to grind and polish, cut and drill.

Shuron Optical Machinery gives shop workers this advantage. Thirty years of manufacture — constantly improving manufacture — makes Shuron able to provide the most efficient operation for today's shops, from the first grinding of a lens to the last mechanical step which the prescription requires.

You can be sure that when your prescriptions are in a Shuron-equipped shop the "other hands" on which those prescriptions depend will be able to put their skill to best use for you.

**SHURON OPTICAL CO., INC., GENEVA, N. Y.**

WORLD'S LARGEST MANUFACTURER OF OPTICAL MACHINERY

# Our Own and Our Cousins' Eyes

by DR. THOMAS HALL SHASTID

Copyright 1926 by THOMAS HALL SHASTID

(Continued from February issue)

## THE MEMBRANA NICTITANS IN MAMMALS

Many of the non-primates have a large, active membrana nictitans. The horse, for example, is continually cleansing the dust from the front of his eye and spreading over that front the highly antiseptic secretion of the gland which lies on the posterior surface of the membrane, or Harder's gland. In fact such animals have, in effect, at the corner of each eye, a fairly good and ever present oculist.

In the human subject, we may say again, in passing, the membrana nictitans is merely vestigial, and is called the "plica semilunaris". It is often diseased, as I have found, and often becomes the nidus for reinfection of the conjunctiva in recurrent conjunctivitis. And chronic inflammation of this vestigial organ should be carefully attended to—as it generally is not. There is often a small space, or pocket, behind it, and this potential cavity, small as it is, should, in all these cases, be thoroughly disinfected and cured.

## THE FUNDUS IN MAMMALS

The fundus of the non-primate eye is simply a marvel for its vast variety of ophthalmoscopic appearances. A day in the zoo with your ophthalmoscope will prove an event in your lives. In the felidae, for example, the optic disc is always deeply cupped so that the blood vessels dip and are not continuous in appearance as they run from the retina over the rim of the cup and down into the depression. This condition explains what is called in human beings a "physiological excavation", *i. e.*, a deep cupping which is not due to glaucoma. The physiological cupping is simply a reversion to an ancestral type of disc. It cannot be otherwise explained.

In all the felidae and some of the other non-primates, there is a tapetum lucidum. This tapetum is what makes the eyes of such

animals "shine in the dark". You will remember that we found the tapetum lucidum first in the fish; only, in the fish, the tapetum covers the entire eye-ground and, passing round to the front of the eye, forms the anterior layer of the iris, where it is known as the "argentea", or silver membrane. (It is the middle coat of the choroid, or else a coat between choroid and sclera, and, in fish, it has a brilliant metallic lustre). In other words, the fish's eye reflects light from the anterior surface of the iris, as well as from the entire interior of its eye. Now, in the felidae, or cat family, and indeed in all the other mammals whose eyes shine in the dark, there is no reflection from the anterior surface of the iris, but only from the interior of the eye, and, further, only from the central part of that interior. Take, for instance, a dog's eye. The central part, as you view it with your ophthalmoscope, shines with a yellowish lustre more bright and beautiful than that of beaten gold. That is the central part of the fundus and of the tapetum lucidum. Round this is a green area, also unspeakably brilliant and beautiful. Then comes, most peripheral of all, a dark zone known as the tapetum nigrum, or black carpet. This reflects no light, and, furthermore, it is partly or wholly blind.

All eyes that shine in the dark do so by virtue of their tapetum lucidum, or concave reflector in the fundus behind the retina. The purpose is to enable the animal to see better in the dark. The little light that is stirring in the outer world enters the pupil, passes through the transparent retina, and on to the middle layer of the choroid, the tapetum lucidum. The retina utilizes this light for vision as it passes through that membrane. It utilizes it again, as the same light is reflected from the tapetum out through the retina, then through the pupil, and on into the outer world, where it falls on the same object from which it came. Here



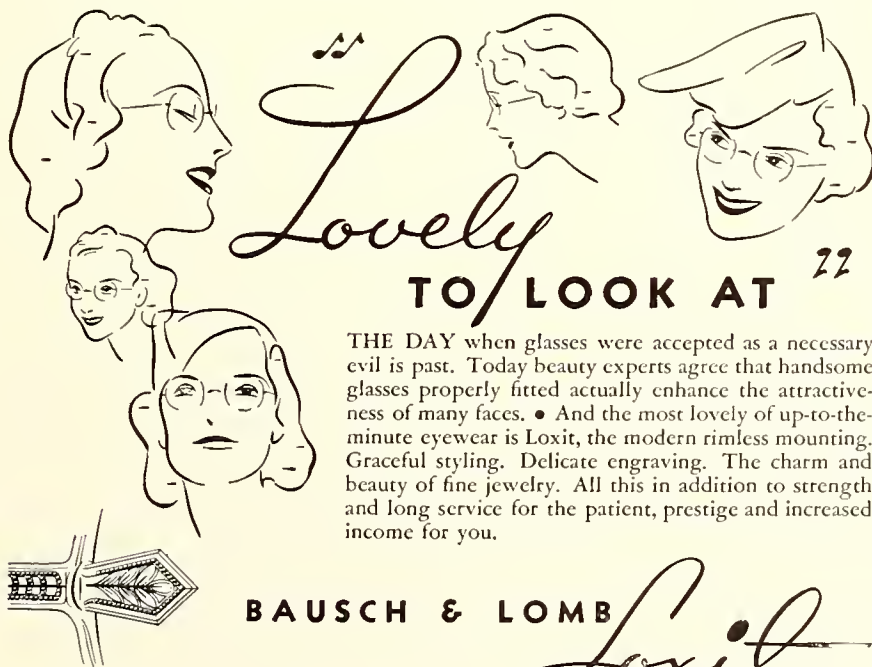
it is joined to the fresh, original light, coming from the object, enters the eye once more, and so on. Each and every ray is in fact utilized until it has been completely absorbed, or stopped, by its frequently repeated transmission through the various media. And thus the carnivora and some other animals, whose vision is very much poorer than ours by day, have vision much better than ours by night. And that is why, as Teacher Collins has admirably pointed out, primitive man lived in great terror of the dark. He was eater by day, but eaten by night. And this is why all human children, even to this present time, dread the dark instinctively and often terribly. It is also the reason why, for long ages, the human race lived, by night, in caves or in lake dwellings.

#### PECULIARITIES OF HORSES' EYES

Most people suppose that only the carnivora have eyes that shine in the dark. But many other animals have such eyes. The eyes of the horse, for example, are not in-

frequently seen to emit in the dark a bluish scintillation. This always comes from the upper part of the horse's fundus. Use your ophthalmoscope on a horse, and you will see that, at the upper part of the fundus, there is a tapetum lucidum. The lower part is, strangely, covered with a dark tapetum nigrum, and it is practically blind. The consequence is that the horse sees almost nothing above the level of its eyes, as I have often demonstrated; while, on the other hand, a horse can see the road, even of a dark night, vastly better than can any human being. In my early days, I, as a country doctor, was often caught far out in the country, of a dark night, without any buggy lantern. All I had to do, then, was to tie the lines to the front rib of the buggy top, and let the horse find his own way home. This he would always do with perfect safety to us both, though the night was sometimes so black that I not only could not see the road, but could not even see the horse or my own hand.

*(Continued in March issue)*



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